Our ref: KON-1707 Client's ref: P4982-001-0000 (US)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: N. HIROSE, et al :
Appln. No.: 10/056,577 :
Filed: January 24, 2002 :
For: Toner for Forming Electro-Static Image :

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Art Unit: 1756
Examiner: Christopher D. Rodee

Confirmation #5337

DECLARATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r:

I, Hiroshi Yamazaki, hereby declare and say as follows:

1. I am one of the Inventors in this Application and have previously submitted Declarations in this case.

2. I received a Masters Degree in Applied Chemistry from Yokohama National University in March 1979. Since April of 1979, I have been employed by Konica Corporation, the Assignee of the present Invention.

During my employment at Konica, I have been engaged in research and development of electrophotographic materials.

3. I am aware that the Examiner criticized my May 14, 2007 Declaration. This Declaration is submitted to address those criticisms.

4. I note that the Examiner noted that the monomers used to make the toners reported in my May 14, 2007 Declaration did not contain a polymer with an acid group. I reviewed the data in the Tables attached to my May 14, 2007 Declaration and note an error. Specifically, the "Monomer Composition" contained an error. The Monomer Composition listed Methyl Methacrylate (MMA). This was wrong. The Monomer Composition contained methylacrylic acid, not methyl methacrylate. Attached is a revised Table in which the methylacrylic acid (MA) is used in place of the methyl methacrylate. Otherwise, I confirm the test results and the procedures reported in my May 14, 2007 Declaration.

5. I am also aware of the fact that the Examiner stated that it was unclear if the difference in Fog is more than a numerical difference. The difference in Fog Density may appear negligible but they are significant. For example, the difference between Modified 3 (Present Invention) and Modified 4 (Outside Claimed Range) is 0.003. This difference is a factor of 1.5 times and this difference is a fatal for a printer (or copier). A fog of 0.009 is not commercially acceptable while a fog density of 0.006 is acceptable. Attached are actual samples that show the difference.

6. The criticality of the acidic component in the toner can be explained. The charge of the toner increases by introducing acidic component into the toner resin, however, the charge leaks when the amount of acidic component is excess, particularly at high temperature and high moisture condition where water adsorption increases. Consequently toner particles having insufficient charge are generated and this causes fog, as demonstrated by my May 14, 2007 Declaration. Further the adsorbed water induces the so called water bridging between toner particles, and causes

coagulation of toner particles, whereby the toner conveying is inhibited to developing potion. As a result it appears image defects of white line at half tone density area as the comparative sample of the experiment demonstrates. The toner of the invention as claimed has controlled particle shape defined by shape coefficient as well as particle size, and has sharp charging characteristics. The charging characteristics are loosened a little to have relatively broadened characteristics. This is considered to have more stabilized charging characteristics. Introducing the acid component and the content thereof are meaningful for the toner particles having shape condition as claimed in the present application. These are not disclosed or suggested in the cited references.

It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the U.S. Code; and that such

willful false statements may jeopardize the validity of this Application or any patent issuing thereon.

Hiroshi Yamazaki

Hiroshi Yamazaki

Dated: This 6th day of Sep., 2007.

Attached: Three Tables
Samples

DCL/mr

Sample	D4 (μm)	N(≤4μm) %	0.60-1.00 μm (%)	SF-1	SF-2	SF-1/SF-2
Nozawa 2	7.1	8.1	4.8	162	138	1.17
Modified 1	7.1	8.1	4.8	162	138	1.17
Modified 2	7.1	8.1	4.8	162	138	1.17
Modified 3	7.1	8.1	4.8	162	138	1.17
Modified 4	7.1	8.1	4.8	162	138	1.17

Sample	Monomer composition (*)	Fog			Halftone Uneveness		
		Initial	After 50,000	After 100,000	Initial	After 50,000	After 100,000
Nozawa 2	St/BA/MA 85/15/0	0.001	0.004	0.009	A	B	C
Modified 1	St/BA/MA 84.8/15/0.2	0.001	0.002	0.005	A	A	B
Modified 2	St/BA/MA 80/15/5	0.001	0.002	0.004	A	A	B
Modified 3	St/BA/MA 71/15/14	0.001	0.003	0.006	A	A	B
Modified 4	St/BA/MA 69/15/16	0.001	0.004	0.009	A	B	C

(*) St: Styrene, BA: Butyl acrylate, MA: methylacrylic acid

Sample	Weight % of monomer having an acid group in the resin
Nozawa 2	0
Modified 1	0.2
Modified 2	5
Modified 3	14
Modified 4	16

Fog Density Sample

0.009

0.006